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REMARKS

This Response to Office action is submitted in response to the Office action dated November 18, 2003. Applicant had previously responded to an Office Action dated May 21, 2003 in an Amendment dated September 17, 2003. In addition to arguing against the Examiner's rejection of the claims 1-26, applicant submitted new claims 26- 33 (renumbered as claims 27-34 since there were two claim numbers 26).

In the instant Office action, the Examiner rejected claims 27, 28, 30, 32 and 33 under 35 U.S.C. 103(a) as being unpatentable over a newly introduced reference, namely U.S. patent no. 5,259,854 issued to Newman. According to the Examiner, Newman discloses a dirt collecting system for a floor care appliance comprising a suction nozzle, a motor fan assembly for creating a dirt laden airstream originating at the suction nozzle and a disposable vacuum cleaner canister with a layer of a filtration media of HEPA for filtering 99.97% of particles 0.3 microns or larger. The Examiner reasons that it would have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a disposable canister or any other type of container or bag with a HEPA filter as taught by Newman for a floor care appliance so that the HEPA filter would remove substantially all of the harmful contaminants from the air stream and the container with particulates can be disposed of afterwards.

However, applicant does not agree because there is no teaching or suggestion in Newman of providing a disposable filtration bag for like the subject filtration bag in a floor care

appliance. The filter in Newman is a cartridge filter for a canister type vacuum cleaner and the canister cleaner is not designed to use a filtration bag that is disposable or otherwise for filtering and collecting dirt. The dirt in the canister cleaner is collected in a the body of the cleaner and there is no need for a filtration bag. In contrast, the subject filtration bag is for use in cleaners that do not have a separate collection area as the debris is collected in the filtration bag. The subject filtration bag is intended as a disposable filtration bag which is cost effective enough to be discarded and replaced when full. In contrast, a filter cartridge such as the one provided in Newman is considered to be more expensive and replaced on a more infrequent basis. The filter cartridge is not replaced each time the body of the cleaner is emptied of dirt. Thus, for at least these reasons, the rejection of claims 27, 28, 30, 32 and 33 under 35 U.S.C. 103(a) as being unpatentable over U.S. patent no. 5,259,854 issued to Newman should be withdrawn. Note that The Hoover Company has been producing an upright vacuum cleaner having a filter cartridge having an outer membrane of expanded polytetrafluoroethylene since at least March, 2000 and is disclosed in Hoover Case 2521, U.S.S.N. 09/519,106 which issued as U.S. patent no. 6,596,044. An Information Disclosure Statement with photographs of the filter cartridge is being filed contemporaneously with the filing of the instant Response to Office Action.

The Examiner then rejected claims 1-26 29, 31 and 34 under 35 U.S.C. 103(a) as being unpatentable over Newman in view of any one of Requejo et al, Zhang and Bosses, and in further view of Maeoka et al. and Wnenchak et al. According to the Examiner, any one of

Requejo et al, Zhang and Bosses discloses a filtration bag for a floor care appliance comprising a closed receptacle for collecting dirt particles having an inlet opening for allowing a dirt laden airstream to enter. Requejo et al. further discloses the bag comprising cellulose or synthetic fibers such as polyolefin, and the front panel portion and bottom panel portion sealed together by folding and an adhesive or mechanical means such as by sewing or by thermal bonding. Zhang discloses the filter bag comprising polyolefin and the sidewalls of the bag are joined by seams via a thermal bonding method. Bosses dislcloses the filter bag can be made out of wood paper, hemp paper or any other filter paper or fabric well-known in the art. Bosses further discloses a vacuum cleaner comprising a suction nozzle, a motor fan assembly and a filtration bag. Either Requejo et al. or Zhang discloses a method of making a filtration bag comprising the steps of providing a sheet of composite material, folding the sheet of composite material, sealing together respective edges by a seam, and providing an aperture in a front sidewall of the receptacle wherein a dirt laden airstream enters. Both Maeoka et al. and Wnenchak et al. discloses an air filter comprising a laminate of non woven fabrics and a PTFE porous film. According to the Examiner, it would have been obvious to a person having ordinary skill in the art at the time the invention was made to replace the canister of Newman by a filtration bag as taught by any one of Requejo et al., Zhang and Bosses with a layer of PTFE film as taught by either Maeko et al. or Wnenchak since PTFE film is well known in the art that filter media made from a thin membrane of ePTFE which is particularly light weight and flexible, air flow through the filter element is very high relative to

conventional laminated materials and, accordingly, very low energies are required to dislodge the collected dirt from its surface.

However, with all due respect to the Examiner, despite the newly introduced Newman reference, applicant disagrees for the same reasons that applicant stated in the Amendment dated September 17, 2003, which is incorporated by reference as if fully rewritten herein. The main thrust of the argument in the Amendment dated September 17, 2003 was that there was no teaching or suggestion in any of the cited references for a combination of the references as the Examiner has proposed as is required by 35 U.S.C. 103(a). Nowhere in Maeoka or Wnenchak does it teach or suggest providing a layer of ePTFE in a disposable filtration bag such as that disclosed in the Zhang, Requejo and Bosses references. Maeoka et al. discloses an air filter made from a laminate of a non-woven fabric comprised of a composite of non-woven fabrics and a PTFE porous film. The filter bag assembly in Wnenchak et al. is comprised of a support structure made of metal or plastic and a filter media of ePTFE. The filter bag assembly is used for cleaning a gas stream of particulates and the layer of ePTFE provides superior gas filtration as well as easy cleaning by pulse jet or shaking techniques. Such an arrangement is unsuitable for use in a floor care appliance which requires a disposable filtration bag. Additionally, there is no teaching or suggestion in Wnenchak et al. that the arrangement can be used for filtering a stream of particle laden air in a floor care appliance. Further, there is no teaching in Newman of utilizing the HEPA filter media on the filter cartridge in a disposable filtration bag such as that disclosed in the Zhang, Requejo and

Bosses references.

The remainder of applicant's argument in the Amendment dated September 17, 2003 with respect to the non-obviousness of the subject filtration bag over the cited references concerns the inherent difficulty in making a disposable filtration bag with a layer of expanded PTFE and that applicant was the first to reduce to practice a disposable ePTFE filtration bag for a floor care appliance that could be mass produced at a commercially viable cost. Applicant was prepared to submit affidavits of persons employed by the assignee of record who were involved in the reduction to practice of the subject filtration bag and test results from an independent third party laboratory to establish that the instant disposable filtration bag actually works for its intended purpose, i.e., filtering dirt particles from a stream of dirt laden air according to the standard known in the industry as "HEPA". The third party laboratory has confirmed on June 13, 2002 that the instant disposable filtration bag will filter dirt particles according to the "HEPA" standard. The affidavit of Sue Roberts, a manufacturing engineer at The Hoover Company, attesting to her involvement and knowledge of the reduction to practice of the subject filtration bag is attached hereto as Exhibit A. Sue Roberts affidavit references Exhibits B and C which are test results from the third party laboratory Inter Basic Resources. In addition, the affidavit of Jackson Wegelin, a staff engineer at The Hoover Company, attesting to his involvement and knowledge of the reduction to practice of the subject filtration bag is attached hereto as Exhibit D. Jackson Wegelin's affidavit references Exhibits E through K. The test results from Inter Basic Resources confirming that the subject

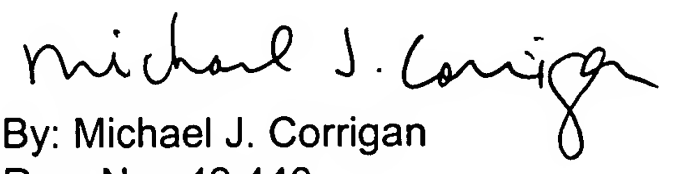
disposable filtration bag will filter dirt particles according to the "HEPA" standard is attached thereto as Exhibit E.

Applicant submits, for at least these reasons, that it would not have been obvious to a person having ordinary skill in the art at the time the invention was made to provide a layer of PTFE film as taught by either Maeoka et al or Wnenchak et al or the HEPA media in the filter cartridge of Newman in the filtration bag of any one of the Requejo et al, Zhang and Bosses references and that the rejection of claims 1-26, 29, 31 and 34 should be withdrawn.

It is believed that above amendment places the present application in condition for allowance. Therefore, it is respectfully requested that this application be examined and an appropriate office action be issued.

RESPECTFULLY SUBMITTED

PARKS



By: Michael J. Corrigan
Reg. No.: 42,440

The Hoover Company
101 East Maple Street
North Canton, OH 44720
Telephone: (330) 499-9200, Ext. 2930
Facsimile: (330) 497-5004

State of Ohio)
) ss
County of Stark) AFFIDAVIT

Before me, A Notary Public, in and for said county and state personally appeared Sue S. Roberts duly sworn by me deposes and states:

1. I am employed by The Hoover Company as a Manufacturing Engineer.

2. During the period of April, 2003 to June, 2003 I was responsible for the development of a manufacturing process for mass producing a disposable filtration bag made from a composite sheet comprised of a layer of expanded polytetrafluoroethylene and a substrate layer that would filter particles according to the HEPA standard of 99.97% of particles 0.3 microns or great for a flow speed of 60 cubic feet per minute for a floor care appliance.

3. Samples of the disposable filtration bag from the production line were submitted for testing to a third party laboratory which confirmed on June 13, 2002 (Exhibit A) and June 21, 2002 (Exhibit B) that the disposable filtration bag filtered 99.97% of all particulate matter 0.3 microns or larger at 60 cfm at a face velocity of 17 fpm which are standard operating conditions for a floor care appliance.

4. Further affiant sayeth not.

Dated this 3/9/04 day of March, 2004.

Sue S. Roberts

Sworn to before me and signed in my presence this 9th day of March, 2004.

Pamela S. Grapes
Notary Public

PAMELA S. GRAPES
NOTARY PUBLIC
STATE OF OHIO
MY COMMISSION EXPIRES 8/14/08

EXHIBIT A

INTER BASIC RESOURCES INC.

IBR®

TEST REPORT

Performed for:Hoover/BHA Location: Contact: Parks/Zimmerman
IBR JN:6246A
Date:6/13/02

Test Method: Aerosol Retention Efficiency per IBR TM E304
Fluid: Air
Instrumentation:HR5230
Temperature:Ambient
Contaminant: Neutralized KCl
Description of Samples: Hoover Y bag 7-35
Date Received: Sample Source:Hoover

		Particles/ft3 at:(in microns)							
Face Velocity	**Port**	**0.3-0.4**	**0.4-0.5**	**0.5-0.6**	**0.6-0.75**	**0.75-1**	**1-2**	**2-3**	**>3**
10.5 fpm	Upstream	607950	104300	94705	33675	43075	42895	6570	15430
	Downstream	14	1	0	1	0	0	0	0
	Efficiency	**99.998**	**99.999**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
17 fpm	Upstream	519635	77870	64470	53460	23480	23025	4155	13455
	Downstream	20	2	1	0	1	2	0	0
	Efficiency	**99.996**	**99.997**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**

Notice: These data relate only to the samples tested. This report may be copied only in its entirety.
pg 1/1
Performed By: DW Data Location:DW103

Reviewed By: _____
Susan H. Goldsmith, Director of Technical Services

EXHIBIT B

HEADQUARTERS:
11599 Morrissey Rd., P.O. Box 250
Grass Lake, Michigan 49240 USA
517-522-8453 Fax: 517-522-3695

IBR SOUTH:
14435 S. FM 548
Rockwall, TX 75032 USA
972-551-2324 Fax: 972-551-2326

INTER BASIC RESOURCES INC.

IBR®

TEST REPORT

Performed for:Hoover/BHA Location: Contact: Parks/Zimmerman
IBR JN:6246A
Date:6/21/02

Test Method: Aerosol Retention Efficiency per IBR TM E304
Fluid: Air
Instrumentation:HR5230
Face velocity: 17 fpm
Temperature:Ambient
Contaminant: Neutralized KCl
Description of Samples: Hoover Y bags
Date Received: Sample Source:Hoover

		Particles/ft3 at:(in microns)							
Filter	**Port**	**0.3-0.4**	**0.4-0.5**	**0.5-0.6**	**0.6-0.75**	**0.75-1**	**1-2**	**2-3**	**>3**
7-15	Upstream	454665	215915	56430	44165	15985	11575	1240	1725
	Downstream	35	11	5	4	1	2	0	0
	Efficiency	**99.992**	**99.995**	**99.991**	**99.991**	**99.994**	**99.983**	**>99.9**	**>99.99**
7-27	Upstream	458445	219735	56760	43810	16075	11115	1075	1545
	Downstream	32	10	2	2	1	2	0	0
	Efficiency	**99.993**	**99.995**	**99.996**	**99.995**	**99.994**	**99.982**	**>99.9**	**>99.99**
7-35	Upstream	519635	77870	64470	53460	23480	23025	4155	13455
	Downstream	20	2	1	0	1	2	0	0
	Efficiency	**99.996**	**99.997**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-36	Upstream	468675	220240	57215	45110	16145	11165	1095	1700
	Downstream	31	11	0	1	0	0	0	0
	Efficiency	**99.993**	**99.995**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-37	Upstream	475045	253125	67310	54005	18425	12995	1275	1835
	Downstream	34	15	4	1	0	0	0	0
	Efficiency	**99.993**	**99.994**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-38	Upstream	476545	257235	68070	54425	18440	13210	1240	1785
	Downstream	49	15	1	4	2	0	0	0
	Efficiency	**99.990**	**99.994**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-39	Upstream	484615	261655	69795	56450	20095	14140	1415	1995
	Downstream	39	14	4	5	1	1	0	0
	Efficiency	**99.992**	**99.995**	**99.994**	**99.991**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-40	Upstream	562695	273410	71585	56955	19730	13545	1265	1825
	Downstream	51	14	2	2	2	0	0	0
	Efficiency	**99.991**	**99.995**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-41	Upstream	568335	276475	71340	55595	19100	13060	1220	1960
	Downstream	31	11	2	0	0	0	0	0
	Efficiency	**99.995**	**99.996**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-42	Upstream	566385	277155	72960	57200	19910	13955	1095	1735
	Downstream	51	8	1	3	1	0	0	0
	Efficiency	**99.991**	**99.997**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**

HEADQUARTERS:
11599 Morrissey Rd., P.O. Box 250
Grass Lake, Michigan 49240 USA
517-522-8453 Fax: 517-522-3895

EXHIBIT C

State of Ohio)
) ss
County of Stark)

AFFIDAVIT

Before me, A Notary Public, in and for said county and state personally appeared Jackson W. Wegelin who being duly sworn by me deposes and states:

1. I am employed by The Hoover Company as a Staff Engineer.

2. During the period of November, 2001 and June, 2002 I was responsible for the development and testing of a disposable filtration bag made from a composite sheet comprised of a layer of expanded polytetrafluoroethylene and a substrate layer and a manufacturing process therefor. Such a bag was first conceived of no later than February 10, 1998.

3. A disposable filtration bag made from a composite sheet comprised of a layer of expanded polytetrafluoroethylene and a substrate layer was developed and a manufacturing process therefor for producing the aforesaid filtration bag in mass quantities and by automated means was developed.

4. Samples of the disposable filtration bag from the production line were submitted for testing to a third party laboratory which confirmed on June 13, 2002 (Exhibit E) and June 21, 2002 (Exhibit F) that the disposable filtration bag filtered 99.97% of all particulate matter 0.3 microns or larger at 60 cfm at a face velocity of 17 fpm which are standard operating conditions for a floor care appliance.

5. The 3M Corporation has been manufacturing a filtration bag since at least 1999 which claims the HEPA rating. A filtration bag in a Hoover "Y" configuration was made by 3M which was subsequently submitted for testing to a third party laboratory on December 15, 2001 to test the veracity of 3M's claim. The test results for the 3M sample are attached hereto as Exhibit H and labeled as sample A1. The 3M filtration bag sample submitted did not achieve the filtration efficiency to qualify for receiving the HEPA rating. Later 3M filtration bag samples submitted did not achieve these results until June 23, 2002. The results are shown in Exhibit I and labeled as samples G1-G3.

6. I have reviewed the HEPA claim on the Kirby Micron Magic Vacuum Cleaner Bag (Exhibit J) and do not believe that this claim is accurate. The claim is based upon a European standard H10 per EN 1822 (Exhibit K) which requires only that 85% of particulate matter be filtered.

7. A sample of a filtration bag made by Homecare Industries at the request of The Hoover Company to provide a filtration bag with a HEPA rating after conception by employees of The Hoover Company was submitted to a third party laboratory for testing. The sample submitted did not achieve the HEPA rating as shown in Exhibit H and marked as sample B1.

8. Further affiant sayeth not.

Dated this 17 day of March, 2004.

Jackson W. Wegelin

Sworn to before me and signed in my presence this 17TH day of March, 2004.

Pamela S. Hayes
Notary Public

PA[illegible]
K[illegible]
STATE OF O[illegible]
MY COMMISSION EXPIRES 8-14-08

INTER BASIC RESOURCES INC.

IBR®

TEST REPORT

Performed for:Hoover/BHA Location: Contact: Parks/Zimmerman
IBR JN:6246A
Date:6/13/02

Test Method: Aerosol Retention Efficiency per IBR TM E304
Fluid: Air
Instrumentation:HR5230
Temperature:Ambient
Contaminant: Neutralized KCl
Description of Samples: Hoover Y bag 7-35
Date Received: Sample Source:Hoover

		Particles/ft3 at:(in microns)							
Face Velocity	**Port**	**0.3-0.4**	**0.4-0.5**	**0.5-0.6**	**0.6-0.75**	**0.75-1**	**1-2**	**2-3**	**>3**
10.5 fpm	Upstream	607950	104300	94705	33675	43075	42895	6570	15430
	Downstream	14	1	0	1	0	0	0	0
	Efficiency	**99.998**	**99.999**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
17 fpm	Upstream	519635	77870	64470	53460	23480	23025	4155	13455
	Downstream	20	2	1	0	1	2	0	0
	Efficiency	**99.996**	**99.997**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**

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Reviewed By: _____
Susan H. Goldsmith, Director of Technical Services

EXHIBIT E

HEADQUARTERS:
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IBR SOUTH:
14435 S. FM 548
Rockwall, TX 75032 USA
972-551-2324 Fax: 972-551-2326

IBR®

TEST REPORT

Performed for:Hoover/BHA Location: Canton OH Contact: Parks/Zimmerman
IBR JN:6246A
Date:6/21/02

Test Method: Aerosol Retention Efficiency per IBR TM E304
Fluid: Air
Instrumentation:HR5230
Face velocity: 17 fpm
Temperature:Ambient
Contaminant: Neutralized KCl
Description of Samples: Hoover Y bags
Date Received: 6/11/02 Sample Source:Hoover

		Particles/ft3 at:(in microns)							
Filter	**Port**	**0.3-0.4**	**0.4-0.5**	**0.5-0.6**	**0.6-0.75**	**0.75-1**	**1-2**	**2-3**	**>3**
7-15	Upstream	454665	215915	56430	44165	15985	11575	1240	1725
	Downstream	35	11	5	4	1	2	0	0
	Efficiency	**99.992**	**99.995**	**99.991**	**99.991**	**99.994**	**99.983**	**>99.9**	**>99.99**
7-27	Upstream	458445	219735	56760	43810	16075	11115	1075	1545
	Downstream	32	10	2	2	1	2	0	0
	Efficiency	**99.993**	**99.995**	**99.996**	**99.995**	**99.994**	**99.982**	**>99.9**	**>99.99**
7-35	Upstream	519635	77870	64470	53460	23480	23025	4155	13455
	Downstream	20	2	1	0	1	2	0	0
	Efficiency	**99.996**	**99.997**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-36	Upstream	468675	220240	57215	45110	16145	11165	1095	1700
	Downstream	31	11	0	1	0	0	0	0
	Efficiency	**99.993**	**99.995**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-37	Upstream	475045	253125	67310	54005	18425	12995	1275	1835
	Downstream	34	15	4	1	0	0	0	0
	Efficiency	**99.993**	**99.994**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-38	Upstream	476545	257235	68070	54425	18440	13210	1240	1785
	Downstream	49	15	1	4	2	0	0	0
	Efficiency	**99.990**	**99.994**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-39	Upstream	484615	261655	69795	56450	20095	14140	1415	1995
	Downstream	39	14	4	5	1	1	0	0
	Efficiency	**99.992**	**99.995**	**99.994**	**99.991**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-40	Upstream	562695	273410	71585	56955	19730	13545	1265	1825
	Downstream	51	14	2	2	2	0	0	0
	Efficiency	**99.991**	**99.995**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-41	Upstream	568335	276475	71340	55595	19100	13060	1220	1960
	Downstream	31	11	2	0	0	0	0	0
	Efficiency	**99.995**	**99.996**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
7-42	Upstream	566385	277155	72960	57200	19910	13955	1095	1735
	Downstream	51	8	1	3	1	0	0	0
	Efficiency	**99.991**	**99.997**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**

HEADQUARTERS:
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517-522-8453 Fax: 517-522-3695

EXHIBIT F

TH:
M 548
5032 USA
972-551-2326

IBR JN 6246A
6/21/2002
17 fpm

		Particles/ft3 at:(in microns)							
Filter	**Port**	**0.3-0.4**	**0.4-0.5**	**0.5-0.6**	**0.6-0.75**	**0.75-1**	**1-2**	**2-3**	**>3**
8-1	Upstream	567980	252370	62295	45220	15770	10055	905	1350
	Downstream	83	17	1	5	0	1	1	0
	Efficiency	**99.985**	**99.993**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
8-2	Upstream	582770	255865	64400	46690	15535	10695	1225	1675
	Downstream	87	22	12	9	0	5	1	1
	Efficiency	**99.985**	**99.991**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**
8-3	Upstream	592575	260545	65430	47345	16190	10665	1030	1310
	Downstream	74	20	3	1	1	0	0	0
	Efficiency	**99.988**	**99.992**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.99**

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Performed By: DW Data Location:DW103

Reviewed By: _____
Susan H. Goldsmith, Director of Technical Services

EXHIBIT F
CONTINUED

BISSELL®

Replacement Vacuum Cleaner Bags - HEPA

STYLE 6

Fits BISSELL Models:

3560 ProLite™ Series

ProLite™

- ***The ProLite Dust Bag utilizes Filtrete Filtration Technology from 3M for the highest efficiency against pet dander, household dust and dust mite allergens.***

Featuring

Filtrete™ Filtration Technology From 3M

AMERICAN LUNG ASSOCIATION Partner

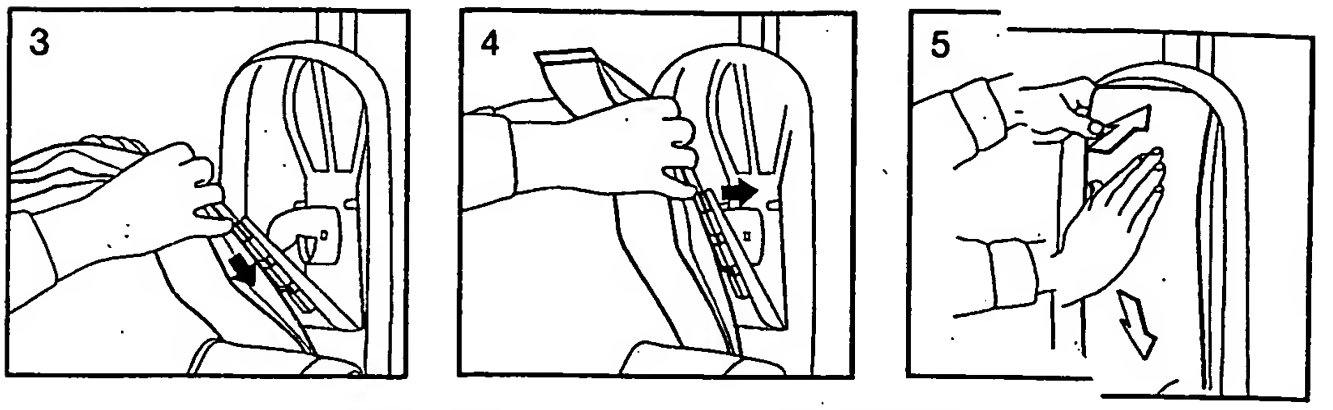
3 Bags

0 11120-32052 7

32052

EXHIBIT G

Replacement Vacuum Cleaner Bags - HEPA



Replacing the Dust Bag

The Dust Bag should be checked weekly. It should be replaced when it is near full or cleaning suction diminishes. Never reuse a vacuum bag.

1. *Unplug vacuum.*
2. *Unzip cloth bag. Remove Collar Retainer by pulling the top toward you. Slide Dust Bag collar up and out of retainer. Dispose of Dust Bag.*
3. *Slide collar of new Dust Bag completely into Collar Retainer.*
4. *Push Collar Retainer back into position and secure in place.*
5. *Tuck the remainder of the Dust Bag completely inside the cloth bag. Make sure it lays flat, top to bottom, without bunching. Zip cloth Dust Bag.*

- *Change bags more frequently when vacuuming dust, carpet freshener, and other materials that clog the bag and reduce performance.*

Questions?

Consumer Information Line
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EXHIBIT G
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WARNING:
Unplug your vacuum cleaner from outlet before replacing any bag, belt, or filter.

INTER BASIC RESOURCES INC.

IBR®

TEST REPORT

Performed for: Hoover Location:N. Canton OH Contact: D. Parks
IBR JN:6019
Date:12/15/01

Test Method: Aerosol Retention Efficiency per IBR TM E304
Fluid: Air
Flow Rate:60 scfm
Instrumentation:HR 5230 Temperature:Ambient
Contaminant: Neutralized KCl
Description of Samples: Vacuum cleaner bags
Date Received: Sample Source: Hoover

			Particles/ft3 at:(in microns)							
Sample	Net DP"H2O	Port	0.3-0.4	0.4-0.5	0.5-0.6	0.6-0.75	0.75-1	1-2	2-3	>3
A1	0.8	Upstream	96158	59019	32178	25028	15499	20858	5694	634
		Downstream	289	167	83	59	32	53	10	1
		Efficiency	**99.70**	**99.72**	**99.74**	**99.76**	**99.79**	**99.75**	**99.82**	**99.84**
B1	1.8	Upstream	132447	89500	49249	38553	23260	32401	9731	1195
		Downstream	2409	492	147	51	23	29	5	0
		Efficiency	**98.18**	**99.45**	**99.70**	**99.87**	**99.90**	**99.91**	**99.95**	**>99.9**
C1	2.8	Upstream	101104	70245	38532	30748	18165	24756	7134	732
		Downstream	566	335	174	109	48	59	13	8
		Efficiency	**99.44**	**99.52**	**99.55**	**99.65**	**99.74**	**99.76**	**99.82**	**98.91**
D1	1.3	Upstream	112794	69457	37772	29631	17582	24751	7486	774
		Downstream	20	7	2	1	1	0	0	0
		Efficiency	**99.98**	**99.99**	**99.99**	**>99.99**	**99.99**	**>99.99**	**>99.9**	**>99.9**
D2	1.4	Upstream	105501	63641	34672	26954	16119	22667	6836	729
		Downstream	15	13	1	2	0	0	0	0
		Efficiency	**99.99**	**99.98**	**>99.99**	**99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.9**
D3	1.4	Upstream	118148	73911	39393	30500	18612	24359	6957	787
		Downstream	10	4	1	1	0	1	1	0
		Efficiency	**99.99**	**99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.9**
E1	1.3	Upstream	105950	64683	34867	27122	16550	22374	6564	673
		Downstream	22	4	5	0	1	2	0	0
		Efficiency	**99.98**	**99.99**	**99.99**	**>99.99**	**99.99**	**99.99**	**>99.9**	**>99.9**
E2	1.3	Upstream	128206	66751	35865	27419	16807	23232	6799	737
		Downstream	6	1	0	2	0	1	1	0
		Efficiency	**>99.99**	**>99.99**	**>99.99**	**99.99**	**>99.99**	**>99.99**	**99.99**	**>99.9**
E3	1.3	Upstream	115785	27245	13505	10340	6759	10459	3621	331
		Downstream	7	2	3	0	1	1	0	0
		Efficiency	**99.99**	**99.99**	**99.98**	**>99.99**	**99.99**	**99.99**	**>99.9**	**>99.9**

Notice: These data relate only to the samples tested. This report may be copied only in its entirety.
pg 1/1
Performed By: DW Data Location:DW

Reviewed By: _____
Susan H. Goldsmith, Director of Technical Services

HEADQUARTERS:
11599 Morrissey Rd., P.O. Box 250
Grass Lake, Michigan 49240 USA
517-522-8453 Fax: 517-522-3695

EXHIBIT H

IBR®

TEST REPORT

Performed for: 3M Location: St Paul MN Contact: D Trudell
IBR JN:6259B
Date:6/23/02

Test Method: Aerosol Retention Efficiency per IBR TM E304
Fluid: Air
Instrumentation:HR5230 sn 9112525
Flow Rate: 60 scfm Temperature:Ambient
Contaminant: Neutralized KCl
Description of Samples: Vacuum bags, Hoover style
Date Received: 6/24/02 Sample Source:3M

	DP		Particles/ft3 at:(in microns)							
Filter	**"H2O**	**Port**	**0.3-0.4**	**0.4-0.5**	**0.5-0.6**	**0.6-0.75**	**0.75-1**	**1-2**	**2-3**	**>3**
S-1	1.6	Upstream	31146	18712	7666	8797	4675	5106	614	1022
		Downstream	1840	546	121	87	31	24	0	8
		Efficiency	**94.1**	**97.1**	**98.4**	**99.0**	**99.3**	**99.5**	**>99**	**99.2**
S-2	1.9	Upstream	203408	159396	56529	53881	22823	17937	1723	2614
		Downstream	15818	6552	1328	892	260	145	10	8
		Efficiency	**92.2**	**95.9**	**97.7**	**98.3**	**98.9**	**99.2**	**99.4**	**99.7**
S-3	1.6	Upstream	250341	172249	59987	58899	24553	19773	1978	2738
		Downstream	19788	6406	1313	760	256	162	14	23
		Efficiency	**92.1**	**96.3**	**97.8**	**98.7**	**99.0**	**99.2**	**99.3**	**99.2**
B-1	1.5	Upstream	30372	19773	8131	9535	5184	5584	704	1104
		Downstream	8400	3982	1198	1149	467	376	46	73
		Efficiency	**72.3**	**79.9**	**85.3**	**87.9**	**91.0**	**93.3**	**93.5**	**93.4**
B-2	0.8	Upstream	231618	154653	53733	52666	22377	17957	1749	2415
		Downstream	72953	33214	8365	6437	2147	1487	139	193
		Efficiency	**68.5**	**78.5**	**84.4**	**87.8**	**90.4**	**91.7**	**92.1**	**92.0**
B-3	0.8	Upstream	223733	149672	52245	51047	21730	17418	1678	2465
		Downstream	67295	31078	8046	6044	2117	1402	128	216
		Efficiency	**69.9**	**79.2**	**84.6**	**88.2**	**90.3**	**92.0**	**92.4**	**91.2**
G-1	2.3	Upstream	160695	109844	40201	40855	18061	15399	1561	2127
		Downstream	7	2	1	0	1	0	0	0
		Efficiency	**99.996**	**99.998**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.9**
G-2	2.3	Upstream	202423	132203	46679	46872	20030	16549	1601	2397
		Downstream	12	1	1	1	0	0	0	0
		Efficiency	**99.994**	**99.999**	**>99.99**	**>99.99**	**>99.99**	**>99.99**	**>99.9**	**>99.9**
G-3	2.3	Upstream	205547	160790	57658	54546	23418	18553	1767	2612
		Downstream	4	4	1	1	2	0	0	0
		Efficiency	**99.998**	**99.998**	**>99.99**	**>99.99**	**99.99**	**>99.99**	**>99.9**	**>99.9**

Notice: These data relate only to the samples tested. This report may be copied only in its entirety.
pg 1/1 Performed By: DW Data Location:DW104

Reviewed By:

Susan H. Goldsmith, Director of Technical Services

HEADQUARTERS:
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EXHIBIT I

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*Materials tested to SOP/ARO/007B – Nelson Laboratories

†Bag system certified by IBR Inc. to H10 per EN 1822 at the nominal airflow (75 cfm) as specified by ASTM F11.23.01.

EXHIBIT J

PennWell

CLEANROOMS

EN 1822: the standard that greatly impacted the European cleanrooms market

Inside Europe

by Thomas Schroth and Dr. Thomas Caesar

STANDARD OFFERS GUIDE TO IN SITU HEPA/ULPA FILTER TESTING

When the new standard EN 1822 "HEPA/ULPA Filters" came into force, it constituted an important step forward for cleanroom technology in Europe. EN 1822's five parts define salient characteristics for HEPA/ULPA filters; classification, performance testing, leak-finding, and collection efficiency determination. It is possible to achieve reproducible measurements for a HEPA/ULPA filter's most important parameters—pressure drop at nominal volume flow and collection efficiency at the efficiency minimum.

Thus, the standard makes a vital contribution to eliminating a confusing multiplicity of methods for specifying the collection efficiency of HEPA/ULPA filters.

For many users of HEPA/ULPA filters, it is of great importance to check the integrity and suitability of the HEPA/ULPA filters concerned in their installed condition. While in situ-testing of the HEPA/ULPA filters is performed in sectors like microelectronics, food production and microsystems engineering, in order to ensure the desired level of product quality, testing in the pharmaceutical industry is often even mandatory under statute law to preclude any possibility of health hazards for humans. In many actual cases, it has emerged that filter users are insufficiently informed as to what filter characteristics can be meaningfully remeasured in situ, or in what cases recourse should be had to the values determined in conformity with EN 1822 by the filter's manufacturer.

Testing HEPA/ULPA filters at the manufacturer's facility

A HEPA/ULPA filter's performance data is determined in a special test rig particularly suited for these measurements and specified in EN 1822. The salient measurements involved are:

- pressure drop at nominal volume flow
- overall collection efficiency (integral collection efficiency) for the particle size with the highest penetration (MPPS = Most Penetrating Particle Size) at nominal volume flow
- local collection efficiencies for the particle size with the highest penetration (MPPS) at nominal volume flow
- freedom from leaks as from Filter Class H13

The results are used for allocation to a filter class from H10 to U17 (see Table 1). The new EN 1822 standard replaces, under European law, all national test standards for HEPA/ULPA filters, such as BS 3928, DIN 24184 or AFNOR NF X44-013. Major innovations introduced by EN 1822 include the use of modern particle-counting technology and determination of collection efficiency in the collection efficiency minimum.

Click here to enlarge imageAll measurements are performed with the filter in its new condition, at a nominal volume flow, which must always be specified. A typical filter test report to EN 1822 is depicted in Figure 1. The filter being tested is scanned by means of movable aerosol feeder nozzles and measuring probes, determining a large number of local collection efficiencies, which can be found in the graphics printed in the test report.

Table 1. Filter classes and collection efficiencies to EN 1822:

	Integral value		Local value [1]	
Filter class	Collection efficiency %	Penetration %	Collection efficiency %	Penetration %
H10	85	15	–	–
H11	95	5	–	–
H12	99.5	0.5	–	–
H13	99.95	0.05	99.75 [2]	0.25 [2]
H14	99.995	0.005	99.975 [2]	0.025 [2]
U15	99.999 5	0.000 5	99.997 5	0.002 5
U16	99.999 95	0.000 05	99.999 75	0.000 25
U17	99.999 995	0.000 005	99.999 9	0.000 1

[1] Lower local values than those specified in the table may be agreed upon between supplier and purchaser.
[2] Evaluation for freedom from leaks may also be possible using the oil thread test.

Determining the collection efficiency minimum and the MPPS are particularly difficult operations in metrological terms. For Filter Classes H13 and H14, the standard alternatively permits what is called the oil thread test to be performed for leak-testing—in which case the filter is not scanned.

For Filter Class U15, the determination of local collection efficiencies (scan test) is

EXHIBIT K